REMARKS

The specification has been amended in various respects. The changes suggested by the Examiner at paragraphs 3 and 4 have been made. The title has been changed to make it consistent with the claims now pending. As to paragraph 1, Applicant believes that the totality of the disclosure is germane to the invention, and requests that it be permitted to maintain all of the disclosure.

Applicants have amended independent claims 50 and 53 to recite that the buffer overrun prevention logic tags, but does not terminate words that overrun the buffer. Support is found in the specification at least at page 36, lines 14-24. In distinction to the cited art, Applicant notes that the Gulick reference identified by the Examiner at column 30, lines 34-40 show that the packet is terminated when an overrun condition exists. Applicants' claimed invention differs at least in this regard. With this Amendment, it is believed that the rejections in paragraph 6-16 are mooted.

Newly presented claims 56-63 more fully cover Applicants' invention, without the addition of new matter. Support can be found in various passages and drawings, including Fig. 8, Fig. 21 ("Wait Until Entire Frame is Received"), Fig. 34 ("Port Speed"), page 14, lines 24-26, page 28, line 14 ("Port Speed"), page 30 ("RTWAIT_EOF 462"), and page 33, line 20 ("WAITEOF 306").

In contrast to the prior art, such as Bennett U.S. Patent No. 5,603,064, which provides such as at column 10, lines 8-37, that the differing data rates are handled by varying the number of parallel pipelines used. Applicants' claims, by way of example, require "a constant number of data signals and a constant clock rate" (claim 60) or "transferring the frame at a fixed through-put that does not change with the link speed" (claim 61).

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."** Prompt and favorable action on the merits of the claims is earnestly solicited. If any minor issues remain, please contact Applicants' undersigned representative at 949-737-2900.

Respectfully submitted,

O'MELVENY & MYERS LLP

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By: _____
David B. Murphy
Reg. No. 31,125
Attorneys for Applicant

DBM/dnd

34263
PATENT TRADEMARK OFFICE

O'Melveny & Myers LLP
114 Pacifica, Suite 100
Irvine, CA 92618-3315
(949) 737-2900

"Version with markings to show changes made"

In the Title:

The title has been changed to -- FIBRE CHANNEL SWITCHING SYSTEM --.

In the Specification:

The paragraph beginning at page 9, line 29 has been replaced as follows:

"Arbitrated Loop topology" permits three or more L_Ports to ~~using~~ use arbitration to establish a point-to-point circuit. When two L_Ports are communicating, the arbitrated loop topology supports simultaneous, symmetrical bidirectional flow.

The paragraph beginning at page 11, line 19 has been replaced as follows:

A "Router" is a module which determines the destination port from an address and other Fibre Channel frame parameters. It is a device which forwards traffic between networks. The forwarding decision is based on network layer information and routing tables, often constructed by routing protocols.

The paragraph at page 12, line 11 through line 13 has been deleted.

The paragraph beginning at page at page 31, line 9 has been replaced as follows:

FIG. 5 shows the Port Control in more detail. Frames are received from the fiber or copper link 151 and enter the Endec 153. The Endec implements the 8B/10B encoding/decoding, the loop port state machine and fabric/point-to-point state machine functions and outputs thirty two bit data

words with two bits of parity and tag information to the receive FIFO 155. The PC contains a module which guards against a receive FIFO overrun ~~154~~ condition 154. Once the receive FIFO 155 starts filling, the Port Control Module (PCM) 156 reads the frame header, requests a route from the router 163, 164 and forwards the frame to the switch core 161, 162. The PCM is configurable by the processor 170 in the Fabric Control module. The Port Control also receives frames from the switch core 165, 166 to be transmitted by the Endec 153.

In the Claims:

The claims have been amended as follows:

Claim 50 (Amended) An improved port control module for use in a fibre channel switching fabric comprising:

~~an~~ a fibre channel input/output port for connection to a link,

an encoder/decoder in communication with the input/output port, and

a buffer,

the improvement comprising the inclusion of buffer overrun prevention logic between the encoder/decoder and the buffer, the buffer overrun prevention logic tagging, but not terminating, words that overrun the buffer.

Claim 52 (Amended) The improved port control module for use in a fibre channel switching fabric of claim 50 where the buffer overrun prevention logic sets tag bits to a unique ~~valve~~ value indicative of an overrun conditions.

Claim 53 (Amended) A method for control of an input buffer, where the input buffer is adapted to receive a stream of data at a rate which is not subject to control by the buffer, comprising the steps of:

receiving fibre channel ~~the~~ data,

placing the data in the buffer,

monitoring for an overflow condition,

and if an overflow condition is detected, including a detectable signal in association with the data, including providing tag bits, but not terminating, data that overrun the buffer, and

providing the data from the buffer and the detectable signal to subsequent devices.

The following new claims have been added:

56. (New) An interconnect system having a plurality of ports transferring received Fibre Channel frames between multiple attached devices comprising,

a first port control module supporting a first link speed,

a second port control module supporting a second link speed, the second link speed different from the first port link speed,

a third port control module supporting a third link speed, the third link speed is the same as either the first port control module link speed or the second port control module link speed,

a connectivity apparatus coupled to each port control module, affecting the

transfer of frames between any two ports,

the connectivity apparatus supporting a fixed frame transfer rate, the same for each frame transferred between any two ports.

57. (New) The interconnect system of Claim 56 wherein the fixed frame transfer rate includes a fixed number of active data signals for all data transfers.

58. (New) The interconnect system of Claim 56 wherein the path or number of data signals connecting any two port control modules over the connectivity apparatus during a frame transfer is fixed and does not change.

59. (New) The interconnect system of Claim 58 wherein the connectivity apparatus is clocked at the same frequency for every frame.

60. (New) An interconnect system having a plurality of ports for routing received Fibre Channel frames between multiple attached devices comprising,

a first port control module supporting a first link speed,

a second port control module supporting a second link speed, the second link speed different from the first port link speed,

a third port control module supporting a third link speed, the third link speed is the same as either the first port control module link speed or the second port control module link speed,

a connectivity apparatus coupled to the first port and the second port for selective interconnection there-between,

the connectivity apparatus transferring frames using a constant number of data signals and a constant clock rate, having the same values between any two ports.

61. (New) A method for sending Fibre Channel frames between ports in a switch, the method comprising the steps of:

receiving an incoming frame at a first Fibre Channel port at a first link speed,

determining the destination port to route the first Fibre Channel frame,

the destination port's link speed being different from the first Fibre Channel port,

transferring the Fibre Channel frame from the first port to the destination port through a connectivity apparatus coupled to the first and the destination ports,

the connectivity apparatus transferring the frame at a fixed throughput that does not change with the link speed.

62. (New) The interconnect system of Claim 61 wherein the fixed throughput applied to the frames is the same value.

63. (New) A method for sending frames between a Fibre Channel network at one speed and a Gigabit Ethernet network at another speed, the method comprising the steps of:

receiving an incoming frame at a first Fibre Channel port at a first speed,

determining the destination port to route the first Fibre Channel frame,

the destination port comprising a Gigabit Ethernet network,

transferring the Fibre Channel frame from the first port to a protocol conversion module through a connectivity apparatus, the connectivity apparatus transferring all frames using a constant number of data signals and a constant clock rate,

converting the Fibre Channel frame to a frame format compatible to being transmitted on a Gigabit Ethernet network,

transmitting the frame out the Gigabit Ethernet port.